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Chief Executive Officer

September 17, 2009

To: Supervisor Don Knabe, Chairman
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Supervisor Mark Ridley-Thomas
Supervisor Zev Yaroslavsky
Supervisor Michael D. Antonovich

From: William T Fujioka
Chief Executive Officer

Jonathan E. Fielding, M.D., M.P.H.
Director and Health Officer of Public Health

Gail Farber
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Acting Director of Planning

REPORT ON THE FEASIBILITY OF USING HAULED WATER FOR NEW RESIDENTIAL CONSTRUCTION IN SELECT AREAS OF THE COUNTY

Background

On July 22, 2003, on a motion by Supervisor Antonovich, the Departments of Public Health (DPH), Public Works (Public Works), and Regional Planning (Planning) were directed to prepare a report on the advisability of reevaluating the DPH Water Availability Requirements, which includes a determination that "hauled water" is not a reliable source of potable water, as defined in the Los Angeles County Code – Title 28 - Plumbing. The existing Water Availability Requirements preclude new development on private property where neither municipal water nor onsite well water is available.

The Water Availability Requirements were issued on January 1, 2003 following a September 2002 letter from the State Department of Public Health and the California Conference of Directors of Environmental Health (CCDEH), advising against the use of "hauled water" in support of new development, and requesting county planning agencies to eliminate this practice. In October 2005, Los Angeles County Code - Title 11 was amended to effectively preclude new development where neither a municipal water supply nor onsite well water are available, and to further incorporate the policy changes established by DPH in 2003.

Public Health Considerations on Water Availability

From a public health perspective, the determination of water availability requires an analysis of both quantity and quality. It is vital that sources of potable water for domestic use meet the established chemical and bacteriological drinking water standards, and that the water source is sustainable. These criteria for *water quality* and *long-term sustainability* are essential in assuring a safe water supply that is protective of public health.

Historically, the most desirable and protected source of domestic water is from a municipal water system, which has proven to provide high quality and a sustainable supply. Where municipal systems do not currently exist, individual water supply wells that are routinely monitored and maintained may provide an alternative source of water that meet established criteria for quality and quantity. While hauled water approaches can be configured and engineered to meet quantity and quality standards, these approaches carry many more inherent problems than other water supply methods. Experience has shown the use of hauled water to be problematic from a quality and sustainability perspective. The problems associated with hauled water are described subsequently in this document under "Risk Analysis of the Use of Hauled Water".

Despite the inherent problems associated with the use of hauled water, there is a benefit to evaluating these problems, and considering protective measures that could be implemented to mitigate the risks. In the County of Los Angeles, there are an estimated 3,000 - 4,000 home sites currently relying on hauled water to meet their domestic supply needs. Identifying ways to make hauled water a more reliable source would directly benefit the health and safety of these "existing users."

County Review of Hauled Water Policy

In early 2008, at the request of Supervisor Antonovich's office to expedite a response to the July 23, 2003 Board request for a report on the advisability of reevaluating the DPH Water Availability Requirements, the CEO convened a series of Work Group meetings with DPH, DPW, Planning, Fire, and County Counsel to review and evaluate the County's current policy on the use of "hauled water", and to develop potential changes for the Board's consideration.

County departments involved in the policy review and evaluation process and their roles are as follows:

1. Chief Executive Officer: facilitator.

2. County Counsel: legal research, advice, and assistance regarding State and Federal laws and regulations, environmental and programmatic issues including criteria for geographic areas to be considered, and preparation of draft documents including a potential ordinance.

3. Department of Public Health: research, analysis, and assessment of risks associated with the use of "hauled water;" and preparation of a position statement on protocols and processes necessary to reduce the risks associated with the use of "hauled water."

4. Department of Public Works: provide information on public and community water purveyors within defined geographical area; assistance in development of criteria for defining applicable geographical areas; and work with DPH on preliminary implementation protocols and processes.

5. Department of Regional Planning: assistance in evaluating whether hauled water is a land use and/or public health and safety issue; with input from task force members, develop criteria for defining geographical areas in which the use of hauled water may be approved; map geographical areas based upon defined criteria; and evaluate need, scope and estimated cost for preparation of an environmental document.

6. Fire Department: assistance in defining criteria for geographic areas to be subject to any revisions to the Water Availability Requirements.

Staff from the foregoing departments worked together to consider the various legal and practical considerations concerning the use of hauled water, both for new construction and for existing homes. Legal considerations include State and Federal law and regulations governing water haulers and their sources, as well as guidance provided by State and Federal agencies. Practical considerations include availability and sustainability of hauled water as a consistent water source, health considerations associated with the use of hauled water, increased fire risk, and difficulties in enforcement.

Staff also researched the extent to which other public entities throughout the nation permit the use of hauled water as a domestic water source and the conditions that these jurisdictions impose upon the use of hauled water.

Based on the foregoing policy review, the Work Group developed a *Position Statement on the Use of Hauled Water for Domestic Purposes* (Attachment I). The Position Statement indicates that the use of "hauled water" is often necessary following an emergency when municipal or private potable water supplies have been interrupted (e.g., fires, earthquakes, or other natural disasters), or when private wells go permanently or seasonally dry due to drought conditions or changes in groundwater availability.

The Position Statement also addresses the potential that the County may consider the use of "hauled water" as a single family residential water supply option for new construction on *"existing legal lots, or lots that are eligible for a certificate of compliance issued by Regional Planning (excluding lots in those areas that are designated "very high fire hazard severity zones in the Malibu/Santa Monica Mountains and South Face of the San Gabriel Mountains), where the property owner has demonstrated that there is no other feasible, potential source of municipal or onsite well water available to the property."* In anticipation that the County might allow such construction, the Health Officer has collaborated with the Work Group in developing the following criteria necessary to ensure water potability and further reduce the inherent risks associated with hauled water:

1. The property owner must contract with a State-licensed potable water hauler;

2. The property owner must ensure that the water hauler is able to provide the necessary documentation, certifying that the water was supplied from a State permitted source;

3. The property must be equipped with a code-compliant storage tank and plumbing connections approved by Fire and DPW, and a disinfection device approved by DPH;

4. The property owner must agree to comply with guidelines regarding the operation and maintenance of the system.

The Work Group considered the need for an ongoing inspection program and renewable operating permit (i.e., yearly or every three years) to ensure long-term compliance with these requirements.

The Work Group also estimated that there are 3,000 to 4,000 existing residential structures already utilizing hauled water for domestic potable water purposes. In order to ensure the safety and potability of hauled water for these existing properties, the Work Group recommends the imposition of similar criteria when undergoing any major renovation requiring a building permit; or within 5 years of the adoption of any ordinance that permits hauled water for newly constructed single family residential purposes, whichever occurs first.

The property owner, in all instances, would be required to acknowledge: (1) the risks of hauled water, including potential health risks, as well as potential reduction in the future availability of hauled water due to water shortages or rising costs; and (2) an understanding of the methods for mitigating these risks.

Key Components of a Potential Hauled Water Program

One of the first steps undertaken by the Work Group was to develop criteria that would define the geographical and developmental type limitations that would be utilized in the County's consideration of any revisions to the current hauled water usage policy. The criteria developed by the Work Group and the reason for the criteria are as follows:

- **County Areas Impacted**: This component included the development of criteria to identify the geographical areas in which hauled water might be approved as a source of potable water for new single family residential development; and mapping such areas of the County. Specifically, the Work Group determined that properties located in the most problematic very high fire hazard severity zones, as defined in the Los Angeles County Fire Code, should be excluded from the potential use of hauled water. The most problematic very high fire hazard severity zones are areas in the Malibu/Santa Monica Mountains and the South face of the San Gabriel Mountains. These areas face a well-documented threat during the Fall fire season as dry north-winds, commonly know as "Santa Ana

Winds", greatly enhance the potential for wind driven conflagrations in these areas. A reliable source of water for firefighting purposes is crucial in these areas, as structures are often remotely located and access is frequently difficult for emergency personnel. The issues of remoteness and difficult access have already prompted the Fire Department to require that indoor sprinkler systems be installed in single-family residences in these areas. Upon exclusion of the most problematic very high fire hazard severity zones, it is estimated that approximately 36,000 lots remain, that may rely upon the use of hauled water as a source of potable water for new single family residential development (Attachments II and III).

- **Non-Geographic Eligibility Criteria/Conditions**: A second component included the development of non-geographic criteria for securing authority to develop property using hauled water. The Work Group determined the following non-geographic criteria constituted important criteria for any potential policy change to allow the use of hauled water to support new development:

  - Parcel must be zoned for single-family residential use. Use of hauled water for multi-family or commercial uses is inappropriate. (Note: The State law contains provisions which allow adult residential facilities, group homes, family child care homes, and farm worker housing by right on parcels zoned for single-family residential uses. These provisions are currently being researched to determine applicability);

  - Parcel must be a lawfully-created parcel on the date the potential new hauled water policy is approved, or on that date the lot must be eligible for a certificate of compliance issued by the Department of Regional Planning. Parcels created by the further subdivision of property following the adoption of the policy will not be eligible;

  - Parcel must be more than 1,500 feet from the existing facilities of a public or community water purveyor, otherwise connection to the water system is deemed feasible;

  - Parcel must be vacant, to accommodate new construction only;

  - Parcel must consist only of slopes less than 50 percent to discourage construction in steep, inaccessible areas;

  - Property owner must demonstrate that parcel cannot be served by a water well that meets County requirements;

- Property owner must record a covenant, binding upon the property owner and future owners, agreeing to comply with all requirements relating to procurement of hauled water and maintaining equipment, and agreeing to indemnify and hold harmless the County from any claims related to the use of hauled water; and

- Single family residential development must comply with all requirements of authority(s) having jurisdiction (including access width, slope, grading, etc.).

Risk Analysis of the Use of Hauled Water

In considering a potential change in the current policy, the Work Group believes it is important for the Board to understand the risks associated with the use of hauled water, as well as the measures that may be employed to mitigate the risks. These risks may be categorized as: (a) risks associated with the source of hauled water; (b) risks associated with the transport of hauled water; and (c) risks associated with potential contamination of hauled water at the property owner's location.

(A) Risks Associated with the Source of Hauled Water

1. *Hauled water may be obtained from unsafe, unmonitored and unapproved sources.* While water haulers are required by the California Department of Public Health to be licensed and obtain water from State-licensed water sources, experience demonstrates that hauled water is often taken from unapproved sources. A recent investigation (2003-2005), conducted by the California Department of Public Health, Food and Drug Branch, revealed that over half of the existing water haulers in the surrounding areas, collected their water from unlicensed sources. Licensed water sources are routinely inspected and tested by the State. Water used from unapproved and unmonitored sources carries significantly higher risks attributed to potential waterborne illness and chemical contamination. It appears that current State regulation in the areas of non-permitted sources and non-compliant haulers may be inadequate.

2. *Risks exist in the transfer of source water to the truck.* Only food-grade connective hoses are approved to fill the hauler's vehicle from the source. Food-grade hoses lower the risk of contamination by micro-organisms. A significant potential for contamination exists when water is transferred from the source to the tanker truck via unapproved connective devices.

3. *Hauled water is a less reliable source than municipal or well water.* Hauled water may be an affordable method for obtaining water at a given time. However, during prolonged periods of drought, where approved water sources may diminish in capacity and the demand continues to increase, water haulers may be the first to be denied source water, and/or prices may become prohibitively high. Hauled water supplies could also be jeopardized as the result of any event that curtails vehicular movement such as earthquakes, fires, flood, and landslide. These kinds of circumstances greatly jeopardize future reliability and quality not only for the initial property owner, but also for the successors and future owners of the property.

4. *Risks associated with the sustainability of hauled water haulers.* A "public water system" within the State and Federal Safe Drinking Water Act is a "system for the provision to the public of water for human consumption, though pipes . . . if such system has at least fifteen service connections . . . "Legal counsel from the Federal EPA have opined that water haulers fall within the definition of public water systems if they serve 15 or more customers. The State, which regulates public water systems, does not currently treat water haulers as "public water systems," but representatives from the State have indicated that they may do so in the future. Many water haulers may have difficulty complying with the strict technical, operational, managerial and financial requirements to which public water systems are held, and they may not be able to stay in the business of providing potable water if the State imposes these regulations. This could make it difficult for people relying on hauled water to obtain hauled water service.

Some of these risks may be mitigated by providing property owners with information on State licensing requirements for the water source, health risks associated with unlicensed water sources, and the potential for contamination if the water is transferred from the source to the hauler's vehicle utilizing unapproved connective devices.

(B) Risks Associated with the Transport of Hauled Water

1. *Water haulers may be unsafe, unmonitored and unapproved.* Water Haulers are required to be licensed by the California Department of Public Health, however not all haulers are licensed. Unlicensed haulers do not consistently meet the prudent safety requirements for proper sanitation and maintenance of water hauling vehicles. Upon full compliance with all State requirements, a Water Hauler may obtain a Water Hauler's License to distribute potable water.

The Water Hauler's License is valid for one calendar year and must be renewed each year by submitting a copy of the most recent coliform test data for the water hauler's vehicle. A licensed hauler must have a current sticker affixed to the upper left quarter of the rear of the vehicle tank that is visible at all times;

2. *Water hauler vehicles may carry health risks.* Frequently water-hauling vehicles carry materials other than potable water. Subsequently these water-haulers fail to recognize the potential for contamination of the future water being delivered to the consumer. The transport tank can present a source of bacterial contamination if not frequently maintained and monitored. A licensed Water Hauler is required to maintain on board the vehicle, records of the dates of cleaning and sanitation (including a description of the process used, cleaning agents and concentration of sanitizing agent); a list of every water source used (including dates, gallonage and the name of the person who authorized the use of the source); delivery points, dates and volumes of water delivered; copies of contracts and licenses; and results of bacterial testing. Not all haulers fulfill these requirements;

3. *Risks exist in the water transfer from truck to storage tank.* Another source of potential contamination exists when the water is transferred from the water hauler's truck to the property owner's water storage tank. Only approved food grade connective hoses may be used to deliver the water from the vehicle to the property owner's storage tank. A backflow prevention device or an air gap must exist between the vehicle's hose and the property owner's storage tank to prevent a cross connection that could potentially contaminate the homeowners storage tank. Additionally, the hauler personnel must also practice good sanitation techniques in the transfer process to further prevent bacterial contamination of the water.

These risks may be mitigated by providing the property owner with adequate information regarding State-licensed potable water haulers; and ensuring that the water hauler is able to provide the necessary documentation (licensing, water sampling test results, and a certificate indicating the State-supplied source) and is aware of and agrees to comply with sound, proven sanitation techniques.

(C) Risks Associated with Potential Contamination of the Hauled Water at the Homeowners' Property

1. *Storage tanks pose risks.* A property owner's storage tank has been found to be a potential source of contamination through the frequent opening and

closing of hatches and transfer pipe openings. Contaminants may enter through poorly constructed and maintained roofs, lids, hatches, vents, and other openings;

2. *Disinfection devises must be used and maintained.* Disinfection devices can be added to the residential plumbing system to eliminate bacterial contaminants. However, these devices, to function effectively, must be monitored and maintained routinely. This may become burdensome to the property owner, jeopardizing the health and safety of the water consumed when the devices are poorly maintained;

3. *Future owners should know the risks.* Upon the sale or ownership transfer of property title, new owners or successors must also be made aware of the risks associated with the use of hauled water existing at the property, as well as the requirements for continued use of bulk hauled water.

These risks may be mitigated by providing the property owner with the requirements for "code-compliant" water storage tank, disinfection device and plumbing connections approved by the Departments of Fire, Public Health and Public Works. The property owner must agree to comply with guidelines regarding the operation and maintenance of the system. Additionally, the property owner would be required to: (1) Acknowledge receipt of recommended methods by which potential risks can be minimized; (2) Acknowledge the potential consequences associated with the use of hauled water, including non-compliance by the water hauler and the possible reduction in the future availability of hauled water due to water shortages or rising costs; and (3) Record a covenant, binding on current and future property owners, agreeing to comply with all requirements relating to procuring hauled water and maintaining equipment, and agreeing to indemnify and hold harmless the County from any claims related to the use of hauled water.

Estimated Cost to Obtain Permit for Hauled Water

Attached are three tables which provide the estimated cost to the owner of a single family residence who wishes to pursue the use of hauled water.

Attachment IV indicates the estimated cost (excluding equipment) for the property owner to satisfy the requirements for obtaining the initial permit for hauled water, approximately $12,650 to $16,650.

Attachment V itemizes the one-time estimated costs to obtain a code-compliant 7,500 gallon storage tank and an NSF approved disinfection device (based on a minimum 5,000 gallon capacity tank plus 2,500 gallons required by the Fire Department for a 2,000 square foot house the tank and disinfection device would cost approximately $10,000 to $14,000). The applicant will need to contact the Fire Department to determine actual tank size based on the proposed square footage of all structures on the parcel.

Attachment VI outlines the estimated annual recurring cost for the purchase of hauled water, ongoing operation and maintenance and the fee for the annual renewal of the Hauled Water Permit, ranging from $12,000 to $13,150.

Next Steps

If your Board determines to direct staff to move forward with changing the County's current policy regarding the use of hauled water, you would need to take the following steps:

- Direct County Counsel, in consultation with other members of the Work Group, to draft an ordinance amending Los Angeles County Code, Title 11 to provide for a single family residential hauled water use policy which incorporate the provisions outlined in this memo, subject to any amendments made by your Board.

- Identify funding and direct the Work Group to develop a work program, outreach plan and estimated timeline for the issuance of an RFP for purposes of retaining a consultant to prepare an environmental impact report (EIR) on the draft single family residential hauled water policy which is in compliance with the California Environmental Quality Act (CEQA) and County CEQA Guidelines. The estimated cost of preparing the EIR is at least $500,000 and the estimated time to prepare is 18 to 24 months.

WTF:JEF:GF:JS
LS:SS:RM:os

Attachments (6)

c: Executive Officer, Board of Supervisors
Acting County Counsel

Department of Public Health – Environmental Health Division

POSITION ON THE USE OF HAULED WATER FOR DOMESTIC PURPOSES

(07.22.09)

In Los Angeles County, domestic water is provided to residential lots via municipal water systems or private water wells. The use of "hauled water" is often necessary following an emergency when municipal or private potable water supplies have been interrupted (e.g. fires, earthquakes or other natural disasters). The use of "hauled water" may also provide an alternative source of potable water when private wells go dry or seasonally dry due to drought conditions or changes in groundwater availability. Under the above stated circumstances, and recognizing that there are risks associated with the use of "hauled water", the Department may approve the use of hauled water subject to the following conditions:

(1) The property owner must contract with a State-licensed potable water hauler;
(2) The property owner must ensure that the water hauler is able to provide the necessary documentation, certifying that the water was supplied from a State-permitted source;
(3) Upon the sale of property, transfer of ownership, an addition to the primary structure, or when undergoing any major renovation where the cost of such renovation exceeds 50% of the current replacement cost of the existing structure and requiring a building permit, or within 5 years of the effective date of the Ordinance, the property owner will provide evidence that the property is equipped with a code-compliant storage tank and plumbing connections approved by the Department of Public Works (DPW), and a filtration and disinfection device approved by the Department of Public Health (DPH);
(4) The property owner must agree to comply with the Department's guidelines regarding the operation and maintenance of the system.

The County is currently considering the use of "hauled water" as a residential water supply for new construction on existing legal lots, or lots that are eligible for a certificate of compliance issued by Regional Planning (excluding lots in those areas that are designated "very high fire hazard severity zones in the Malibu/Santa Monica Mountains and South Face of the San Gabriel Mountains), where the property owner has demonstrated that there is no other feasible, potential source of municipal or onsite well water available to the property. Should the County decide to allow such construction, the role of the Health Officer of the Department is to assure that the water is "potable". The specific conditions are as follows:

(1) The property owner must contract with a State-licensed potable water hauler;
(2) The property owner must ensure that the water hauler is able to provide the necessary documentation, certifying that the water was supplied from a State-permitted source;
(3) The property must be equipped with a code-compliant storage tank and plumbing connections approved by DPW, and a filtration and disinfection device approved by DPH; and
(4) The property owner must agree to comply with the Department's guidelines regarding the operation and maintenance of the system.

The property owner, in all instances, is required to acknowledge: (1) Receipt of the Department's recommended methods by which potential risks can be minimized; and (2) The potential consequences associated with the use of hauled water, including non-compliance by the water hauler and the possible reduction in the future availability of hauled water due to water shortages or rising costs. [1]

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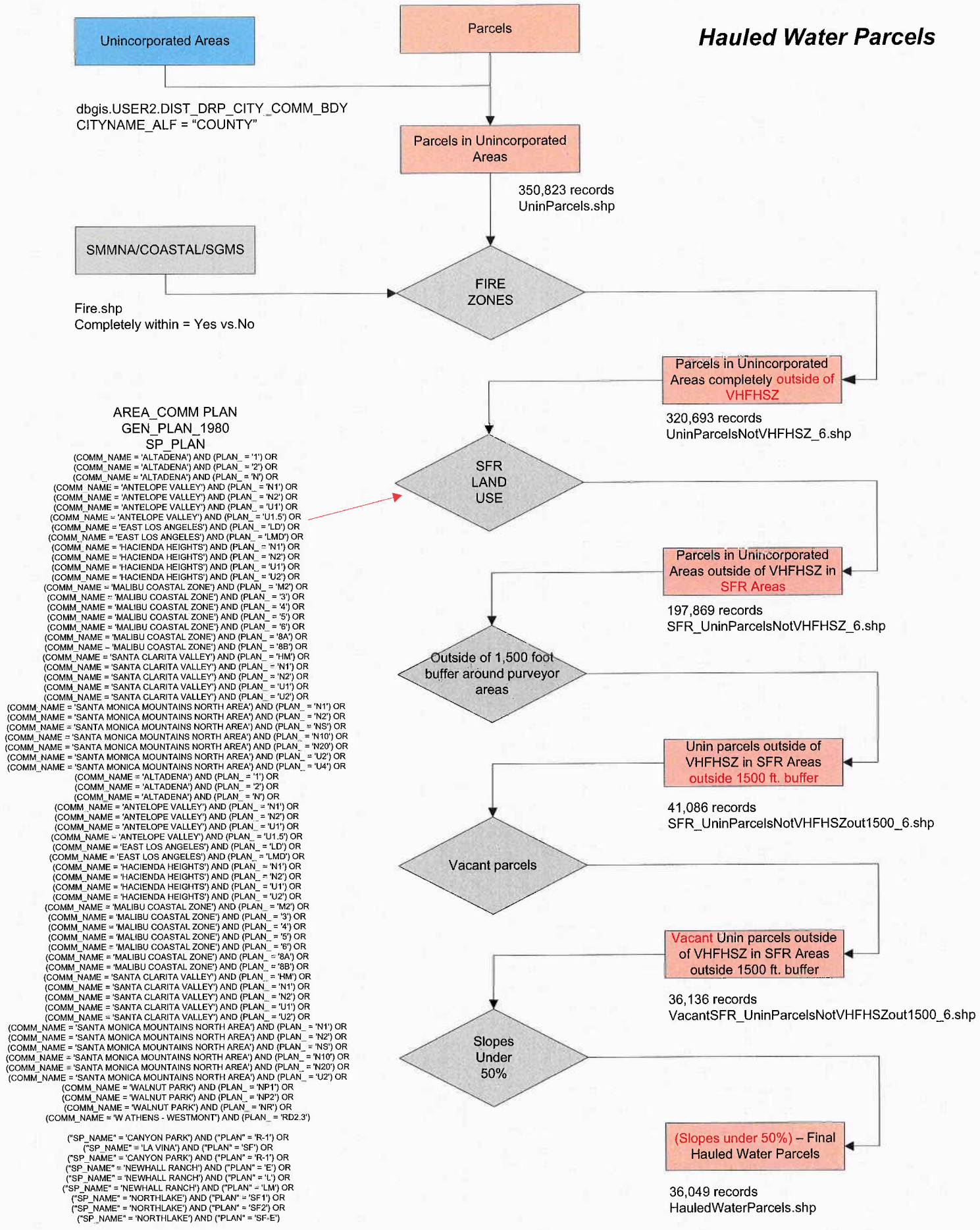
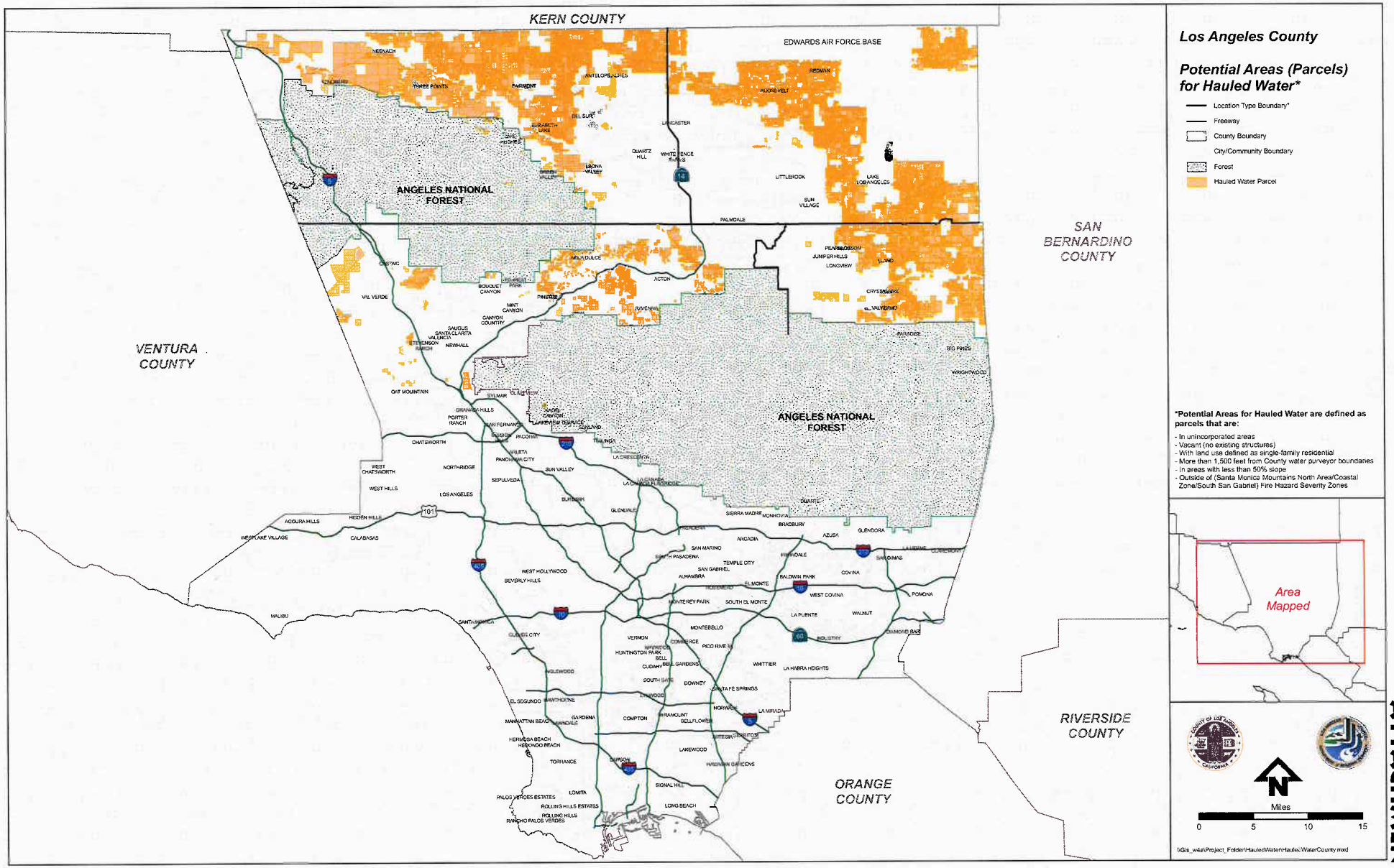
[1] The California Department of Public Health (State DPH) and California Conference of Director of Environmental Health (CCDEH) do not support the use of hauled water as a source of domestic water for new residential development. This position is based on the health risks associated with the process of obtaining, transporting and storing water for domestic use. Letter from State DPH and CCDEH dated February 7, 2003, "Federal Safe Drinking Water Act Amendments Affecting Potable Water."

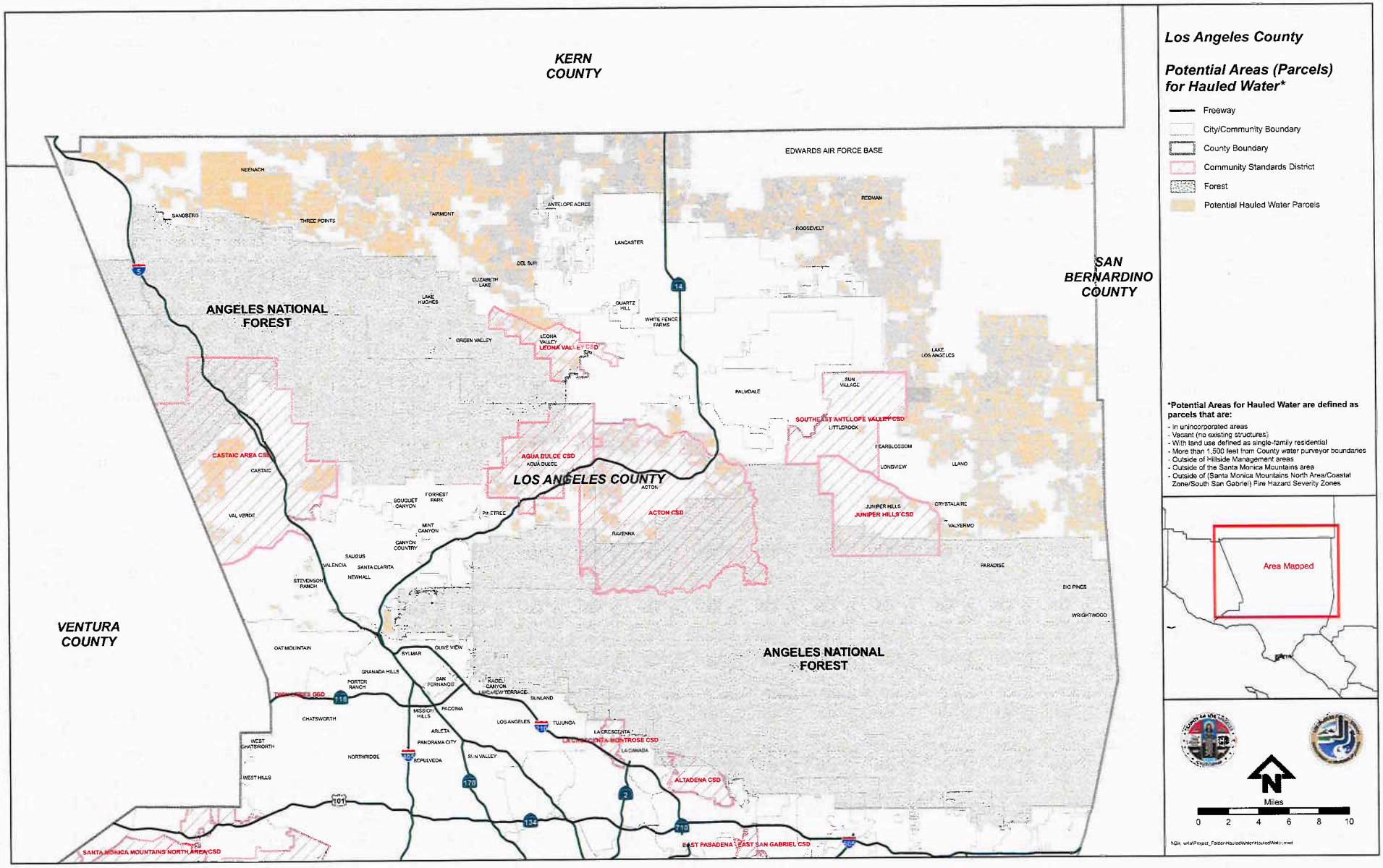
ATTACHMENT II

Hauled Water Parcels





ATTACHMENT III-1



ATTACHMENT III-2

Estimated Cost to Satisfy Requirements to Obtain Hauled Water Permit

The cost for a property owner to satisfy the requirements to obtain a permit for hauled water is estimated to range from $12,650 to $16,650. These amounts include the following:

1. Hydrogeological report with recommended location and depth of a test hole (consultant)	$2,000
2. Plan Preparation for tank and plumbing connections (consultant)	$1,500
3. Hauled Water Plan Check Fee (Public Health and Public Works)	$650
4. Drilling costs for 8-5/8" diameter test hole and performing e-log (contractor)	$8,000 to $12,000*
5. Annual Hauled Water Permit Fee (Public Health)	$500
TOTAL	**$12,650 to $16,650**

*The cost varies depending on the depth of the test hole.

Estimated One Time Equipment Cost for a Property Owner

The cost for a property owner to operate a hauled water system would range from $10,000 to $14,000. These amounts include the following:

1. Code-compliant storage tank with a 7500 gallon capacity	$8,500 to $12,000*
2. NSF approved disinfection device	$1,500-$2,000
TOTAL	**$10,000-$14,000**

*Minimum 5,000 gallon water storage capacity based on public health requirements of 3 gallon/minute plus additional 2500 gallon capacity required for Fire Department for a 2,000 square foot house (NOTE: As the square footage of the home increases, the number of gallons of water to be stored (tank size) to meet the Fire Department requirements also increases).

Estimated Annual Operations and Maintenance Cost for Hauled Water

The annual cost for a property owner to operate and maintain a hauled water system is estimated to range from $12,000 to $12,650. These amounts include the following:

1. Purchase of Hauled Water	$10,150*
2. Operation & Maintenance of Code-Compliant Tank	$1,500-$2,000
3. Operation & Maintenance of Disinfection Device	$300-$500
4. Annual Renewal - Hauled Water Permit	$500
TOTAL	**$12,000-$13,150**

County Waterworks District No. 37, Acton. For comparison purposes, an equivalent amount of water purchased from Waterworks District No. 37, Acton, would be $530. Additionally, during prolonged periods of drought, where approved water sources may diminish in capacity and the demand continues to increase, water haulers may be the first to be denied source water, and/or prices may become prohibitively high.